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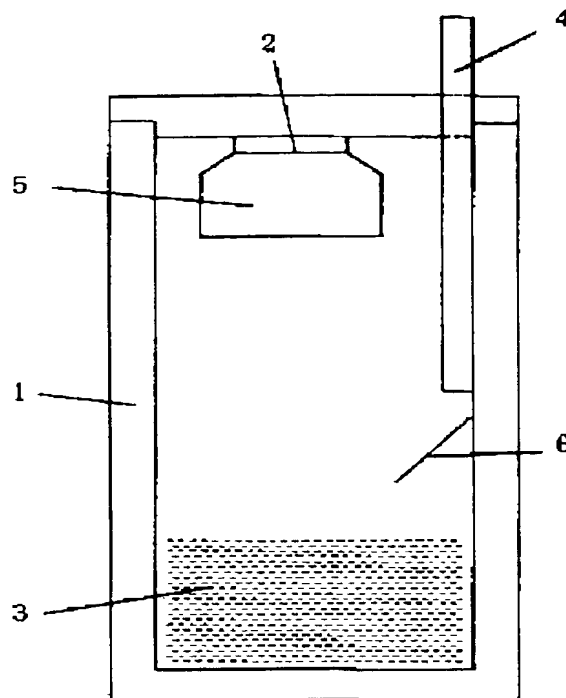
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TITLE : PRODUCTION OF SILICON CARBIDE
SINGLE CRYSTAL



ABSTRACT : PROBLEM TO BE SOLVED: To provide a method for producing a silicon carbide single crystal, by which the single crystal having little impurity element and crystal defect is produced by using a crucible having the inner face covered by a heat resistant metal carbide as the crucible for storing a raw material for the silicon carbide.

SOLUTION: A metal carbide coating membrane having $\geq 10 \mu\text{m}$ thickness is formed by loading a highly pure graphite powder in a metallic crucible 1 of Ta or the like, and heating the graphite powder in the atmosphere of an inert gas such as Ar gas or in vacuum by a high frequency heater or the like at about $2,300^\circ\text{C}$ for a prescribed time. A silicon carbide powder or a green compact 3 as the raw material is intermittently or successively supplied from a raw material powder-supplying pipe 4, and heated to $2,000\text{--}2,400^\circ\text{C}$ to degrade and sublime, and a growing single crystal 5 is epitaxially grown on a silicon carbide seed crystal 2 heated to $1,800\text{--}2,300^\circ\text{C}$ to provide the objective high quality single crystal in the method for producing the silicon carbide single crystal. The degrading temperature of the metal carbide is preferably $\geq 1,900^\circ\text{C}$, and the metal carbide is selected from TaC, ZrC, NbC, TiC, Nb₂C, WC, MoC, Mo₂C, Ta₂C, etc.

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